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***Pseudocrangonyx*, a New Genus of Subterranean
Amphipods from Japan.**

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With 4 Text-figures

Many forms of amphipods peculiar to subterranean waters are known from various parts of the world. They generally show features specially adapted to their habitat: some have their eyes much degenerated or even entirely absent, and some without pigment throughout the surface of the body. Such forms have been described mainly from Europe, North America and Australia, but from Japan no species has been known to this time. While engaged in the study of the freshwater fauna and flora of this country, one of the joint writers (K. A.) happened to obtain two forms of such peculiar amphipods from subterranean waters of certain parts of the country and he prepared sketches of the animals. Some time afterwards, the other writer (T. K.) had an opportunity to study a similar amphipod from a different locality. Comparison of their findings convinced the writers that they had to deal with forms specifically different from one another but belonging to a common genus evidently new to science.

The present note embodies the descriptions of the genus and species. In consulting literature necessary for determination, the writers are much indebted to Mr. H. Honda of the University of Pennsylvania and to Mr. K. Kishida of the Tokyo Imperial University.

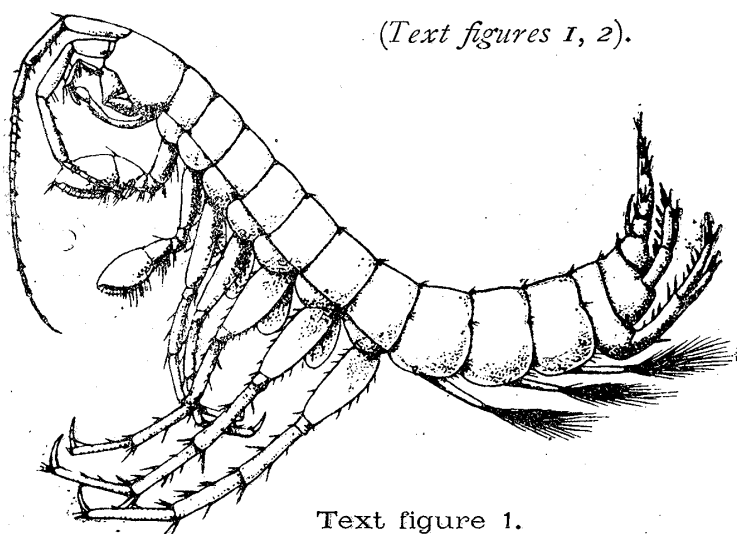
Pseudocrangonyx, n. g.

Body compressed. Eyes wanting. Side-plates shallow. First antenna longer than second, accessory flagellum small, 2-jointed. Upper lip rounded; lower lip, inner plate rather indistinct. Mandible third joint of palp longer than second. First maxilla, inner plate with 3 or 5 setae, outer with 7 spines; second maxilla, inner plate fringed with setae along apical half of inner margin. Maxilliped, outer plate a little broader than inner, palp large. First gnathopod stouter than second. Second joint of third to fifth pereopods moderately dilated. Third uropod, outer ramus rather elongated, 2-jointed, inner ramus wanting. Telson emarginate at apex.

Evidently, the new genus resembles *Crangonyx* very much, especially in that the third uropod is uniramous, in which condition both of the genera may be distinguished from other allied genera, *Eucrangonyx*, *Niphargus*, &c. The proportional size of the two pairs of the gnathopods also shows the close relationship of the two genera. *Pseudocrangonyx* differs, however, from *Crangonyx* mainly in that the third uropod is rather long and two-jointed, while it is short and one-jointed in *Crangonyx*.

1. **Pseudocrangonyx shikokunis** n. sp.

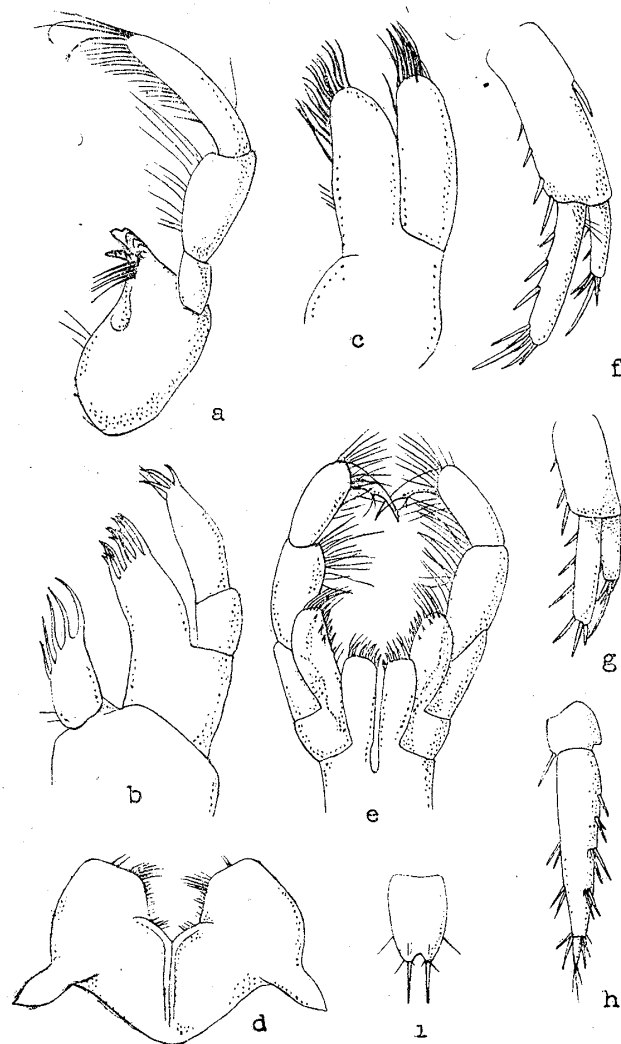
(Text figures 1, 2).



Text figure 1.
Pseudocrangonyx shikokunis n. sp. ♂. X 10.

Eyes wanting. Body slender, elongated; height at seventh thoracic segment about $1/7$ of total length. Sideplates very shallow, sixth slightly excavated behind, eighth

somewhat shallower than the rest. First to third abdominal segments, postero-lateral corners rounded. First antenna rather longer than half



Text figure 2.

Pseudocrangonyx shikokunis n. sp.

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|--------------------|-------------------|
| a. left mandible. | b. first maxilla. |
| c. second maxilla. | d. lower lip |
| e. maxilliped. | f. first uropod. |
| g. second uropod. | h. third uropod. |
| i. telson. | |

(a. e. $\times 40$; b-d. $\times 60$; f-i. $\times 20$.)

of the length of body, first joint somewhat longer than second, third about half as long as second, flagellum somewhat longer than one and a half times of the length of peduncle, 21-jointed; accessory flagellum very small, 2-jointed. Second antenna about half as long as first, ultimate and penultimate joints of peduncle long, of which the ultimate slightly longer, flagellum about as long as penultimate joint of peduncle, 7-jointed. Mandible, accessory plate of incisor process with 5 subacute teeth on left, and 3 acute teeth on right side; palp, second joint moderately broad, third nearly as long as first

and second joints combined. First maxilla, inner lobe with 5 apical setae, outer with 7 serrated spines; palp alike on both sides, surmounted

with 3 spinous setae and 2 delicate hairs. Second maxilla, both plates with rounded apex, inner plate with numerous setae along the apical half of inner margin, the basal half naked except for the existence of a few delicate hairs. Maxilliped, outer plate slightly broader and longer than inner plate, with rounded apex and fringed with numerous spines and setae on apex and along inner margin, inner plate with 4 or 5 spines and numerous setae on truncate apex.

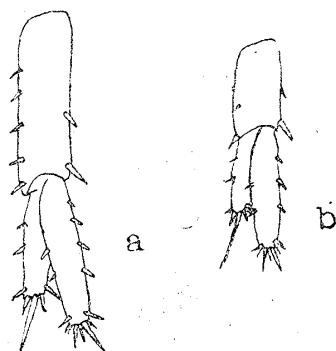
First gnathopod stouter than second, fifth joint trapeziform, sixth somewhat broader and much longer, triangular, with convex palmmargin; second gnathopod, fifth joint triangular, sixth somewhat broader and much longer, semilunar, with oblique palm-margin. First and second peraeopods subequal, third somewhat stouter and longer, fourth and fifth much stouter and longer than third, subequal in length to each other, but fifth somewhat stouter than fourth; second joint of third to fifth peraeopods moderately expanded and elongate-oval.

Ends of first and second uropods nearly attaining apex of telson, that of third uropod much beyond it. First uropod, peduncle somewhat longer than inner ramus, outer ramus about half as long as inner; second uropod, peduncle subequal in length to inner ramus, outer ramus about $2/3$ as long as inner. Third uropod comparatively long, with a single 2-jointed ramus, inner ramus wanting altogether, outer ramus about 5 times as long as peduncle, second joint short and small, but distinct, provided with 3 hairs on apex. Telson, one and a half times as long as broad, with anterior half of margins parallel and posterior half convergent, apex emarginate, armed with a long acute spine on each side of the emargination.

Habitat.—A well at Tomioka, Prov. Awa in Shikoku, one male (length, 7mm.) and one female (8.2 mm.), collected by Mr. I. Imaki. According to the collector, this form is found from time to time from wells at Komatushima, Tomioka and Kamoya, along the north-eastern coast of Prov. Awa.

2. *Pseudocrangonyx yezonis* n. sp.

This resembles so much the preceding *P. shikokunis* that it was with some hesitation that we refer it to a different species. But, so far as can be ascertained from the material available to Akatsuka, it may, be distinguished from the latter mainly in the following points :



Text figure 3.

Pseudocrangonyx yezonis n. sp.a. first uropod. ($\times 20$).b. second uropod. ($\times 20$).

1. First three abdominal segments, postero-lateral corners quadrate.

(In *P. shikokunis* rounded)

2. First antenna, length less than half the length of body, flagellum 18-jointed.

(In *P. shikokunis* more than half the length of body, flagellum 21-jointed).

3. Flagellum of second antenna distinctly longer than either of the last two joints of peduncle and 8-jointed.

(In *P. shikokunis* nearly as long as either of them and 7-jointed.)

4. Outer ramus of first uropod about $\frac{2}{3}$ as long as inner ramus.

(In *P. shikokunis* about half as long as inner ramus.)

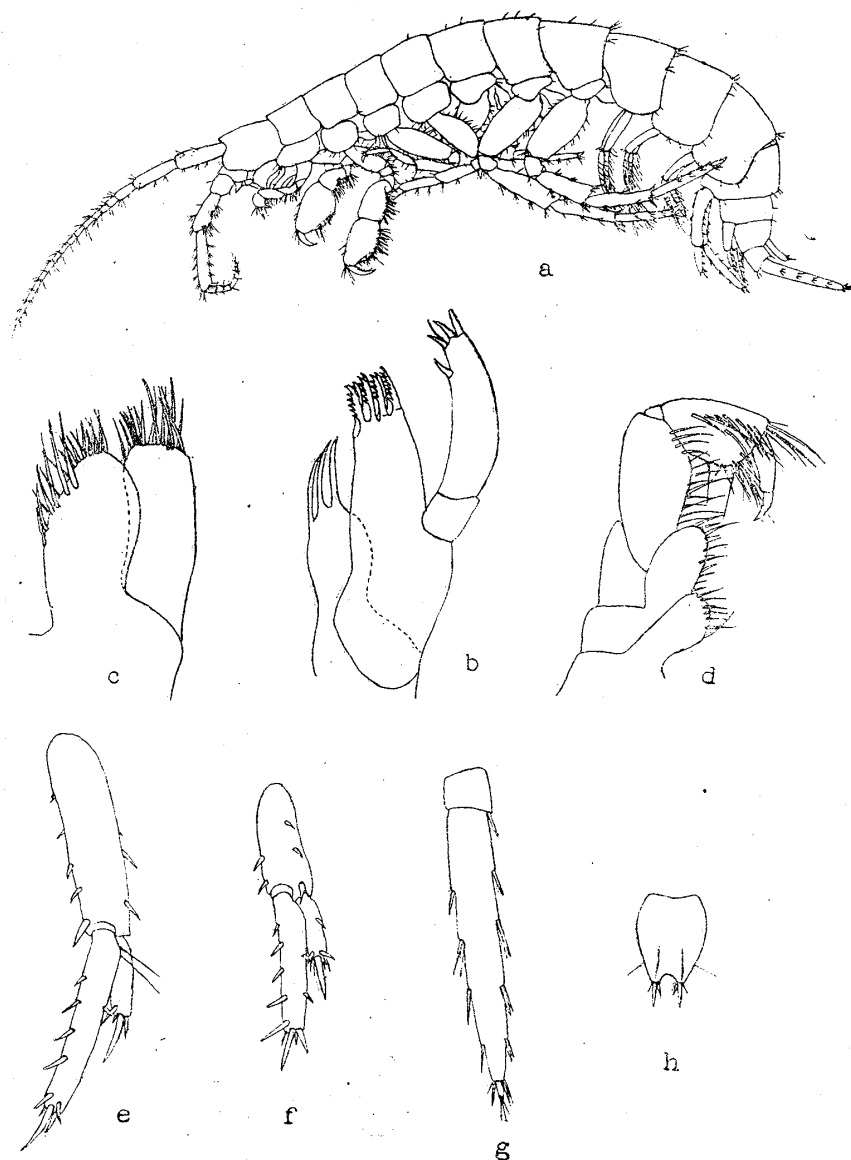
Habitat.—Wells in Sapporo ; rather common.

It is to be noted that this species resembles more closely *P. shikokunis* than *P. kyotonis* to be described next, contrary to what might be expected from the locality.

3. *Pseudocrangonyx kyotonis* n. sp.

Eyes wanting. Body elongated ; side-plates of last three thoracic segments somewhat shallower than the rest and excavated posteriorly ; first to third abdominal segments, posterolateral corners rounded. First antenna about $\frac{2}{5}$ as long as body ; first joint of peduncle somewhat longer than second, third about half as long as first ; flagellum only

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Text figure 4,

Pseudocrangonyx kyotonis n. sp. ♀.

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| a. side view. | b. first maxilla. |
| c. second maxilla. | d. maxilliped. |
| e. first uropod. | f. second uropod. |
| g. third uropod. | h. telson. |

(a. X7; b-d. X60; e-h. X23).

slightly longer than peduncle, 15-jointed; accessory flagellum minute, 2-jointed. Second antenna somewhat longer than half the length of

first antenna; ultimate and penultimate joints of peduncle long, of which the ultimate a little longer; flagellum about as long as the penultimate joint of peduncle, 7-jointed. Mandible, second joint of palp moderately broadened, third nearly as long as first and second joints combined. First maxilla, inner lobe with 3 apical setæ, outer with 7 serrated spines; palp alike on both sides, surmounted with 4 spines and 1 delicate hair. Second maxilla, both plates rather broader and shorter than in the preceding two species, inner plate with rounded and outer plate with truncate apex, inner plate fringed with numerous setæ along the apical half of inner margin. Maxilliped, inner and outer plates nearly equal in size, inner plate with truncate, and outer with rounded apex, inner plate with a few spines and many setæ on apex; outer plate fringed with numerous setæ along apical and inner margins; palp, second and third joints expanded laterally.

First gnathopod very slightly stouter than second; fifth joint nearly as long as broad, with a lobelike process on inner margin, sixth somewhat broader and much longer, with both margins convex, palm-margin oblique. Second gnathopod, fifth joint about 1.5 times as long as broad, sixth somewhat broader and much longer, with outer margin slightly and inner margin strongly convex, palm-margin oblique and very slightly curved. First and second peræopods subequal, third slightly stouter and longer, fourth and fifth much more so, subequal in length to each other, but fifth somewhat stouter; second joint of all peræopods, especially that of third to fifth expanded laterally and elongate-oval.

All pairs of uropods more slender than in the preceding species; end of first and second uropods almost attaining the apex of telson, that of third uropod much beyond it. First uropod, inner ramus nearly as long as peduncle and 2.5 times as long as outer ramus; second uropod, inner ramus somewhat longer than peduncle and about 2.5 times as long as outer ramus. Third uropod elongated, inner ramus wanting, outer ramus almost 7 times as long as peduncle, with very short second joint. Telson slightly longer than, broad apex divided into two submedian

lobes by a rather shallow median emargination, base of the lobes elevated into longitudinal ridges nearly parallel to each other.

Habitat.—Kyoto, aqueduct, one female (11 mm.).

There is no doubt that this specimen belongs to a species distinct from either of the preceding two. It may be distinguished from those species mainly in the facts that, the first antenna is shorter in length and the inner lobe of the first maxilla has only three setæ on apex and further that all pairs of uropods are more slender and elongated.

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